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ABSTRACT

This report focuses on pedgagogical technique within the context of the rapid expansion and demographic changes in college and university enrollments and how, coupled with budgetary entrenchment, these forces have left institutions of higher education dedicated to providing quality education in a state of crisis. Teaching is seen to be the key factor responsible for student learning and satisfaction with college, and the use of a teaching method called the interactive classroom is suggested as an appropriate methodology for raising educational quality and satisfaction for both teachers and students. The pedagogical cycle of the interactive classroom, consisting of four stages, and the benefits derived from each are described and discussed. The first stage, the introduction, is outlined and includes an illustrative example of such a segment from a freshman history class. This is followed by a similar analysis of the second stage: the questioning process by the instructor to the students. Third, the student response stage of the interactive classroom is discussed. Finally, the instructor's response, or feedback, is examined. The paper concludes with recommendations for improving the quality and raising the importance of the teaching profession. (GLR)

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THE INTELLECTUAL EXCHANGE

EXCELLENCE AND EQUITY IN COLLEGE TEACHING

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(1988)

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The Changing College Climate

> Students go to college expecting something special. Their parents share this hope. Only in America is the decal from almost any college displayed proudly on the rear window of the family car. [1]

College is the center piece of the American dream. Parents who can barely afford life's necessities somehow set money aside so their children can go on to higher education. There remains a deep rooted faith that this experience will somehow empower our nation's children, encouraging them to become "more competent, more concerned, more complete human beings."[2]

Nevertheless, postsecondary education is an institution rocked by change. Students of today find college markedly different from just a few decades ago. In part, changes are due to enrollment that has increased 400 percent in the last four decades.[3] Consider the following measures of growth.

- In 1960, 25 percent of the school age population attended college. Today more than 40 percent of the school age population goes on to college.
- In 1960, 1400 colleges and universities granted 400,000 undergraduate degrees. Twenty years later over 2000 institutions granted more than 900,000 such degrees.

[1] Ernest Boyer, College: The Undergraduate Experience in America, Harper and Row, 1987.

[2] Ernest Boyer College: The Undergraduate Experience in America

[3] Kenneth Eble, The Aims of College Teaching, San Francisco, California, Jossey-Boss, 1983.

- There have been huge increases in the size of individual institutions. The University of California was the nation's largest institution in 1960 with seven campuses accomodating 54,000 students. Today the University's nine campuses extend their services to more than 130,000 students.

- As large colleges increase in size, the small college is becoming a vanishing breed. In 1960, colleges with fewer than 1,000 students accounted for 63 percent of enrollment nationally. Today these small colleges are responsible for less than 40 percent of national enrollment.

In the wake of expansion and change is a larger and more bureaucratic college campus, often less aware of and able to respond to student problems and needs. And these students are far more diverse than in the past. The following statistics make it clear; postsecondary education no longer serves a privileged elite.[4]

- Over 50 percent of today's undergraduates are women.

- One out of every six students is a minority group member.

- Three out of every five students are attending college part time.

- Two out of every five students are over twenty-five.

Kenneth Boulding has called demography "the celestial mechanics of the social sciences."[5] Harold Hodgkinson has said

[4] Study Group on the Conditions of Excellence in American Higher Education, Involvement in Education: Realizing the Potential of American Higher Education, National Institute of Education, 1984.

[5] Kenneth Boulding as quoted in Harold Hodgkinson, "Reform? Higher Education? Don't Be Absurd!" Phi Delta Kappan, Vol. 68, No. 4, December 1986, p. 273.

that "demography is destiny."[6] By analyzing the four year old population of today, demographers can predict the potential college population of the year 2000. They say it will become more - not less - diverse.

1984 saw more immigrants - legal and illegal - come to the United States than at any time in our nation's history. While the immigrants of the first half of the century were primarily Eruopean, today's immigrants come mainly from Asia and Latin America.

Birthrates of today also have implications for the colleges of tomorrow. The average white American is now 31 and moving out of the child bearing years. In contrast, the average black American is 25 and the average Hispanic two years younger - just entering into the high fertility period of life. By the year 2000 it is predicted that one-third of the U.S. population will be nonwhite.[7] While the barrier of poverty will deny many of today's children access to higher education tommorrow, these demographic statistics still have vast implications for post-secondary institutions.

There have been problems of rapid expansion followed by budgetary retrenchment; the increasing diversity of the student population, have left higher education, in the words of Ernest Boyer, "an institution in crisis."

[6] Harold Hodgkinson, "Reform? Higher Education? Don't Be Absurd!", p. 273.

[7] Harold Hodgkinson, "Reform? Higher Education? Don't Be Absurd!"

• For the last 20 years only 50 percent of the students who set out to attain a bachelor's degree actually reached this goal.[8]

• From 1964 to 1982, student performance on 11 of 15 subject areas of the Graduate Record Exam (GRE) declined. The sharpest decline was in those areas requiring high verbal skills.[9]

• Studies show that employers are dissatisfied with the level of preparation of college graduates. Many corporations provide remedial instruction for the college graduates they employ.[10]

• Twenty percent of 1985 college graduates went on to jobs that did not require any college education at all.[11]

• According to the Governors' 1991 Report on Education "Today's graduates are not as well educated as students of past decades. Gaps between ideal academic standards and actual student learning are widening. Evidence of program decline, and devaluation, particularly in the humanities, is becoming increasingly prevalent."[12]

[8] Study Group on the Conditions of American Higher Education, Involvement in Learning: Realizing the Potential of American Higher Education.

[9] Clifford Adelman, "The Standardized Test Scores of College Graduates 1964-1982," prepared for the Study Group on the Condition of Excellence in American Higher Education. Washington, D.C.: U.S. Department of Education, National Institute of Education, 1984.

[10] Seymour Lusterman, "Education in Industry" Report No. 719. New York: The Conference Board, 1977.

[11] Harold Hodgkinson, "Reform? Higher Education? Don't Be Absurd!"

[12] Governor Lamar Alexander, Chairman, The Governors' 1991 Report on Education, Time for Results, Washington, D.C.: National Governors' Association, 1986, p. 155.

Although a number of factors have shaped the current college crises, a central theme has been insufficient emphasis on college teaching. More attention has been paid to research and publication than to the quality of life behind the classroom door. Current concern about the quality of college graduates is in part concern about the quality of college teaching.

The Value of Teaching

The last decade has seen one postsecondary reform report after another calling for higher priority on quality teaching. Based on thousands of hours of site visits, national surveys and literature reviews, College - The Undergraduate Experience in America states

> "Members of the faculty determine the quality of the undergraduate experience. And the investment in teaching is the key ingredient in the building of a successful institution ... At every research university, teaching should be valued as highly as research and good teaching should be an equally important criterion for tenure and promotion. At liberal arts and comprehensive colleges, top priority should be assigned to teaching."[13]

In Time for Results, The Governors 1991 Report on Education, the College Quality Task Force also stressed the importance of holding undergraduate instruction "in special trust."[14] The NIE Report Involvement in Learning highlighted teaching, particularly interactive teaching, as a top priority in the postsecondary experience.

[13] Ernest Boyer, College: The Undergraduate Experience in America.

> The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement in learning ... Traditional classroom practices in higher education favor the assertive student. But our analysis indicates that instructors should give greater attention to the passive or reticent student.[15]

The report's bottom line: interaction with faculty is the key factor responsible for student learning and satisfaction with college.

Education Is Not a Spectator Sport

In medieval times, dedicated students traveled long distances to listen to distinguished scholars lecture and read from the book. It was indeed the book - the only book - because the printing press had not yet been invented. Although today's learning material is mass produced through a mind boggling array of print and media technology, university teaching holds to its historic roots: the lecture mode prevails.

While there is much to be said for lecture as one important mode of teaching, its widespread prevalence as the instructional technique of the college classroom raises questions- questions the reform reports have been asking. But it is not only the reform reports that are calling for more active student involve-

[15] Study Group on the Conditions of American Higher Education, Involvement in Learning: Realizing the Potential of American Higher Education, p. 19.

[14] Quoted in John Ashcroft, "Does a Degree Tell Us What the Student Has Learned?" Phi Delta Kappan, Vol. 68, No. 4, November, 1986, p. 226.

ment in learning. Many faculty also resist such prevalence of the lecture and call for more intellectual exchange with students in their classrooms.

> About five years ago, after moderate success as a university teacher of biochemistry and genetics, I made a discovery that has affected my teaching every since. I realized that when I lectured I was the one who learned most. I was the one whose thinking skills were enhanced and whose creativity was stimulated. I played the active learning role; the student' role was passive...[16]

> "Like most university professors, I was a university student for many years. Most of my classes were concluded a few minutes before the bell - just in time for the professor to ask, "Are there any questions?" This was the "discussion" part of what was termed the lecture - discussion mode. To me those few minutes were often the most invigorating part of the class. Years later when I made the transition from student to professor, I considered a technique that would expand those last few minutes to the entire class period but would not dilute the content or diminish the intellectual challenge...[17]

[16] Edward Glassman, "The Teaching as Leader" in Ken Eble, Editor, New Directions for Teaching and Learning, 1980, No. 1 San Franscisco, Jossey Boss, p. 31.

[17] Mary Lynn Crow, "Teaching as an Interactive Process, in Ken Eble, Editor, New Directions for Teaching and Learning, p. 41.

Box

1949

This lecturer is undoubtedly one of the best that one is likely to hear on a university campus. Nevertheless, there was little evidence that he understood that teaching should result in an interplay of mind on mind; that a class hour should be for the student an active hour; that the instructor should contribute something - the fruit of his scholarship and experience - which the students cannot obtain for themselves by their own reading.

Paul Klapper, "The Professional Preparation of the College Teacher" Journal of General Education April 1949 3, pp. 228-244. (Eble, p. 7).

1986

The typical teaching strategy is normally the lecture, which demands no active response or participation from the learner. The authors of Involvement in Learning (noted) the passivity of students in the classrooms of higher education.

Harold Hodgkinson, "Reform? Higher Education? Don't Be Absurd!" Phi Delta Kappan, December 1986.

Students also resent their invisibility in an instructional system in which the instructor lectures and they listen. In such a system they have little opportunity for genuine intellectual exchange. Sometimes they do not get to know the professor at all. In 1980, 40 percent of 5,000 students surveyed claimed that not a single professor had taken an interest in their personal

academic life. Forty-two percent said they were treated like numbers in a book.[18]

An interactive classroom is one that involves all members of the classroom - professor and students (more than just two or three) in intellectual dialogue. Research on interactive teaching suggests that it has many positive outcomes and should be more widely used.[19] In an interactive classroom, students

- Become active rather than passive participants in learning;
- Develop problem solving and critical thinking skills;
- Reality test their ideas with their peers;
- Develop positive attitudes toward learning and higher self esteem;
- According to some studies, achieve more.

Professors who move from lecture dominated to interactive classrooms

- Assess student academic performance more effectively;
- Learn more about their students as individuals;
- Sometimes are frustrated because they don't "cover" as much material;

[18] Robert Jacobson, "Most Students Are Satisfied With Their Education, "Survey Indiates, But Frustrations are Widespread," The Chronicle for Higher Education, Feb. 5, 1986, p. 1.

[19] Mary Lynn Crow, "Teaching as an Interactive Process. See also, Study Group on the Conditions of American Higher Education," Involvement in Learning: Realizing the Potential of American Higher Education." See also, Ned Flanders, Analyzing Teaching Behaviors: Reading: Mass.: Addison Wesley, 1970.

- Often find teaching more stimulating when it is a two way street.

In short students actively involved in intellectual exchange with faculty learn more, enjoy learning more, and have more self confidence about themselves as learners.

The Pedagogical Cycle

Most professors are genuinely committed to good teaching; but they have reservations. Some say that teaching is an art, you have it or you don't. Others claim that researchers don't have a reliable handle on what "good teaching" is anyway. Today research is focusing on those teaching behaviors that result in student achievement. There is now information on effective teaching skills, especially as these apply to interactive classrooms. Studies show that with information, resources, and training postsecondary instructors can improve markedly the quality of their teaching and the achievement of their students.

One of the most useful concepts for increasing the quality and effectiveness of classroom interaction is what Columbia University researcher Arno Bellack has called the pedagogical cycle. After tape recording thousands of hours of classroom dialogue, Bellack identified four instructional moves that teachers and students make in an interactive classroom.[20]

[20] Arno Bellack, The Language of the Classroom. New York: Teachers College Press, Columbia University, 1966.

Stage 1: Instructor Provides Structure (Introduces, gives directions, establishes framework, sets forth a base of information)

Stage 2: Instructor Solicits (Questions)

Stage 3: Student Responds (Answers)

Stage 4: Instructor Reacts (Evaluates or comments on student response)

Structure is the introductory segment of the class; it is the time when the instructor organizes the lesson, and sets forth key information. Following this introductory segment, the teacher asks a question. Next the student answers. Finally the teacher reacts. After the instructor reacts, the pedagogical cycle begins again, typically with Move 2 (question) or sometimes with Move 1 (structure). These moves are episodal, occuring over and over throughout the length of an interactive lesson. The following dialogue from a freshman history class, shows this pedagogical cycle in action.

Pedagogical Cycle	CLASSROOM DIALOGUE 1
STRUCTURE (Instructor)	Yesterday we reviewed the causes of the American Revolution: Economic, political, psychological and social factors all played a role.
	Santayana wrote that if we do not learn from history, we will be condemned to repeat it.
	Learned or condemned, which are we? Are we moving forward, learning from our

mistakes? Are we doing a side-step, repeating them over and over? One of the things I find most exciting about history is its relevance to contemporary times.

(Silence)

Today we shall focus on two events and examine Santayana's premise. Here is the objective of today's lesson.

(Instructor writes on board)

To compare and contrast the American Revolution with the Vietnam War.

QUESTION (Instructor): Who can identify a similarity between the Vietnam conflict and the American Revolution? Sam?

RESPOND (Student): Both groups wanted to be independent from a colonial power.

REACT (Instructor): Excellent point - two centuries had not eliminated the presence of colonialism.

QUESTION (Instructor): Who can build on that?

RESPONSE (Student): The Vietnamese and the Americans took on a much more powerful foe. And won.

REACT (Instructor): That's true, but we could use more focus on that point.

QUESTION (Instructor): How would you describe the economics of the nation's involved?

RESPONSE (Student): Well, the colonies and the Vietnamese were both agricultural societies. The British and twentieth century Americans were wealthier, and had more diverse economies.

REACTION (Instructor): In both cases the weaker, poorer agrarian societies fought economically stronger adversaries. The people of the land waged war on world leaders - and won.

QUESTION (Instructor): Why?

RESPONSE (Student): I think part of it was distance. The stronger and wealthier countries had to fight over a great distance.

REACTION (Instructor): A critical factor.

RESPONSE (Student): Also the tactics were important. Both the colonists and the Vietnamese used guerilla tactics. They were able to defeat more powerful conventional armies.

REACTION (Instructor)

Tactics were crucial. If you can't win military battles, you can't win the war. Good point.

SUBSTRUCTURE (Instructor)

There were a number of similarities between the American revolutionaries and the Vietnamese fighting us. Both grew from an agricultural society and using unconventional tactics defeated a much stronger adversary. Distance played a role in both cases, and there were other similarities as well. The American revolutionaries were blessed with talented leaders: Jefferson, Franklin, Adams, Washington. And the Vietnamese were led by Giap and Ho Chi Minh, who incidentally some people refer to as the "George Washington of Vietnam".

But there were differences as well. Critical differences.

QUESTION

What were some of the differences in these two conflicts?

Often the difference between effective and ineffective instruction is determined by how well each of the stages of the pedagogical cycle are implemented. Is the structure organized and motivating? Are questions phrased effectively? Are they addressed to specific students or do volunteers answer most

teacher queries? Do females and minority group members receive fewer questions than others? How long does the teacher wait for a student to answer a question? What kind of feedback is given to student responses? Research indicates that student achievement is related to the clarity, precision, distribution and effectiveness of each stage of the pedagogical cycle. The next sections show how effective use of each stage in the pedagogical cycle can improve teaching and student achievement.

Stage 1: Structure

CHART 1

THE PEDAGOGICAL CYCLE: STRUCTURE

STRUCTURE
QUESTION
RESPOND
REACT

Most college instructors can describe classes that in their words:

- "never clicked"
- "just didn't get off the ground"
- "were boring"
- "seemed to leave the students in confusion."

The problem may have been at the first stage of the pedagogical cycle. Structure is key to establishing a positive tone, high motivation, and a clear and coherent base of information. It requires more than announcing a topic or even relating an interesting and pertinent anecdote. When it is done well, structure

provides students with a framework for learning, offering both background and direction for the lesson. An effective structure can be both facilitating (helping the students to master the lesson) as well as motivating (encouraging the students to want to learn).

The length of this initial structure may vary greatly - from a few minutes to perhaps twenty or thirty. (However, when structure continues for most of the class period, it no longer serves to establish an interactive discussion; it has become a lecture). When the structure stage is done well, it usually contains several critical components.[21] These are described below and are keyed to the sample classroom dialogue on pages xx.

- Motivation - While rising tuition costs may provide ample motivation for some, not all students enrolled in a specific course are eagerly awaiting each day's instruction. An intriguing question, an anecdote, a joke, or eye catching instructional materials will help pull students into the lesson. By motivating the students at the start of the lesson, attention, involvement and learning are enhanced.

The instructor's personal enthusiasm for the subject he or she teaches can serve to motivate students. One of the loudest and clearest messages that students hear is: "I like the subject I teach." "History continues to fascinate me." "I enjoy the period of literature we're studying." A teacher's personal

[21] Robert Slavin, Educational Psychology. Englewood Cliffs, New Jersey: Prentice Hall, 1986. See also Dave Berliner, "The Half-Full Glass: A Review of Research on Teaching." In Philip Hosford (Ed.), Using What We Know About Teaching. Alexandria, Virginia: Association for Supervision and Curriculum Development, 1984.

enthusiasm for a subject can have a halo effect, including both the subject studied and the students themselves. Conversly, a professor who shows little interest in the content is unlikely to involve students in learning.

- Objectives - The objective of the lesson represents the lesson's purpose, i.e. the information, skills or concepts that students are to acquire as a result of instruction. Are they to learn the impact of the Vietnam conflict on U.S. foreign policy? How to write a short story? How to undertake tests for statistical significance? Regardless of subject, a clearly stated purpose (or purposes) increases instructional efficiency. Some studies even show achievement increases if the objectives are shared with the students. This can be done by stating the lesson's objectives during the initial structure, writing them on the board or overhead projector before the lesson begins, or including the objectives on course syllabi and related handouts.

Sharing objectives of the lesson provides the class with a sense of direction and a clearly focused goal. It also moves responsibility for mastering content from the teacher to the student. Objectives increase instructional accountability and can even assist the teacher in clarifying his or her thoughts about the purpose of and approach to the lesson.

- Clarity - Most professors, immersed in their fields of interest, can remember making overly optimistic assumptions about student knowledge. To avoid confusion (which is sometimes not fully discovered until midsemester exams) students should not be innundated with a complexity of data and rushed through new information. Rather, they should be introduced gradually to key

concepts and generalizations. Several examples should be provided to illustrate the main ideas. Information needs to be repeated. Studies show that clarity in structure (as in written information) establishes a common foundation of knowledge and is directly related to student achievement.[22]

- Providing transitions - Related to the broader concept of clarity is the skill of providing transitions. Transitions serve to tie new information to prior learning and one aspect of a lesson to the next. Transitions are the connective tissue that help students keep focused and on target.

While academic structuring usually occurs at the beginning of a lesson, there may be other times when additional structuring is called for. These substructures are likely to occur when new topics are introduced and transitions are needed. Substructures usually initiate new pedagogical cycles, connect previously learned topics to new information and are crucial in keeping the lesson on track.

A closer look at the structure stage of the history class dialogue makes the components of structure apparent.

Pedagogical Cycle	Dialogue
STRUCTURE	
(Instructor)	
Transition to prior learning	Yesterday we reviewed the causes of the American Revolution: Economic, political, psychological and social factors all played a role.

[22] Donald Cruickshank, "Applying Research on Teacher Clarity," Journal of Teacher Education, 36, 1985, pp. 44-48.

Santayana wrote that if we do not learn from history, we will be condemned to repeat it.

Motivating Questions

Learned or condemned, which are we? Are we moving forward, learning from our mistakes? Are we doing a side-step, repeating them over and over. One of the things I find most exciting about history is its relevance to contemporary times.

Motivation: Instructor Enthusiasm

(Silence)

Today we shall focus on two events and examine Santayana's premise.

(Instructor writes on board)

Objective

To compare and contrast the American Revolution with the Viet-Nam War.

. . .

SUBSTRUCTURE

(Instructor)

Clarity: summarizing and repeating information

There were a number of similarities between the American revolutionaries and the Vietnamese fighting us. Both grew from an agricultural society and using unconventional tactics defeated a much stronger adversary. Distance played a role in both cases, and there were other similarities as well. The American revolutionaries were blessed with talented leaders: Jefferson, Franklin, Adams,

Clarity: use of examples

Washington. And the Vietnamese were led by Giap and Ho Chi Minh, who incidentally some people refer to as the "George Washington of Viet-Nam".

Transition to another aspect of the lesson

But there were differences as well. Critical differences.

QUESTION

What were some of the differences in these two conflicts?

The brief dialogue above contains many aspects of effective structure: setting objectives, providing transitions, use of summaries and examples, motivating questions, and teacher enthusiasm. This structure lays the groundwork for the next move in the pedagogical cycle.

STAGE II: QUESTION

THE PEDAGOGICAL CYCLE

STRUCTURE

QUESTION

RESPOND

REACT

> To question well is to teach well. In the skillful use of the question more than anything else lies the fine art of teaching; for in it we have the guide to clear and vivid ideas, and the quick spur to imagination, the stimulus to thought, the incentive to action. 23

23 John Dewey, How We Think, rev. ed. Boston, Mass:D.C. Heath, 1933, p. 266.

Decades of classroom research confirm John Dewey's insight. The competent use of questioning is positively associated with student achievement and favorable attitude towards learning. Such studies provide a compelling rationale for emphasizing not only lecture but also interaction in postsecondary classrooms. Questions are the key to interaction and intellectual exchange between professor and student. However, skillful questioning is easier said than done as can be seen from the following excerpt of classroom dialogue.

CLASSROOM DIALOGUE II

QUESTION: (Instructor)	Although multiple reasons have been ascribed to U.S. involvement in the Southeast Asian conflict during the 1960s and 1970s, what was the popular perception of the reason, according to your text?
RESPONSE (Kevin calling out)	Most Americans believed that we were trying to stop the spread of communism
REACTION (Instructor)	OK
QUESTION (Instructor)	According to the author of your text, why was Vietnam perceived to be so critical in the struggle against communism?
RESPONSE (John raising hand)	Well, most Americans believed that if we didn't stop communism in Vietnam, it would eventually spread to other countries.

REACTION (Instructor)	Yes
QUESTION (Instructor)	What was the name given to that view?
RESPONSE (Myra raising hand)	The domino theory.
REACTION (Instructor)	OK
QUESTION (Instructor)	Although to one degree or another Presidents from Eisenhower to Nixon were involved in this conflict, which President is most closely associated with Vietnam?
RESPONSE (Kevin raising hand)	Johnson
REACTION (Instructor)	Fine
QUESTION (Instructor)	And on the other side of the ledger, who was the Vietnamese who led his country for decades fighting both the French and the Americans?
RESPONSE (David raising hand)	Hu Chi Minh

REACTION (Instructor)	All right.
QUESTION (Instructor)	How does your textbook explain why the Vietnamese won? Al?
RESPONSE (Al)	I don't know.
REACTION	Hmm.
QUESTION (Instructor)	Ben?
RESPONSE (Ben raising hand)	The war was unpopular in America?
REACTION (Instructor)	Uh-huh
QUESTION (Instructor)	Some say the style of fighting the Viet-cong used contributed to their victory. What was this called?
RESPONSE (Alice raising hand	Guerilla tactics.
REACTION (Instructor)	Fine.
QUESTION (Instructor)	After the Americans ended their involvement, what happened? Did the domino theory prove to be valid?

RESPONSE (Kevin calling out)	Partially. Cambodia and Laos fell under Vietnamese influence and control. But not Thailand or the other countries in the region.
REACTION (Instructor)	Uh-huh

Levels of Questions

This scenario represents an interactive classroom with the professor asking questions rather than giving a lecture. However the student role in this intellectual exchange is generally limited to two or three word responses. This is a result of the instructor's questioning strategy.

One of the first steps to more effective classroom interaction is an understanding of the different levels of questions. Classroom questions are often broadly categorized as follows.

- Lower-order questions: Lower-order questions can be answered only through memory and recall. Example: "Who is Secretary of State?" represents a lower order question; it depends on memory for a response.

- Higher-order questions: Going beyond simple recall, higher-order questions demand higher-order thought processes, such as analysis, synthesis and evaluation. Example: "Based on the three plays we have read, what generalizations can you make about Shakespeare's portrayal of women?" To answer this question students must do more than rely on memory. They will need to analyze the plays and develop a generalization based on evidence.

Research conducted from the beginning of the century to the present day indicates that the vast majority of classroom questions are lower-order.[24] While lower-order questions are useful in establishing a foundation of information, the heavy dependency on such a basic level of discussion does not promote higher order thought processes and student achievement. In the sample dialogue above, most of the questions would be categorized as lower-order.

There are several more complex categorizations of classroom questions. Based on the work of Benjamin Bloom and others, the most widely used is called The Taxonomy of Educational Objectives: Cognitive Domain. There are six levels of questioning in the Taxonomy,[25] ranging from lower order to higher order. Effective instruction suggests that instructors be aware of these different levels, and use all of them in the classroom interaction. The following chart summarizes Bloom's Taxonomy.

LOWER ORDER QUESTIONS

KNOWLEDGE: Recall or recognize information, using memory or senses to answer questions

Sample: What is the meaning of "oxymoron?"

Identify the first five presidents.

What color is the solution now?

[24] Myra Sadker and David Sadker, "Questioning Skills," in James Cooper (Ed.), Classroom Teaching Skills: Handbook. Lexington, Mass.: D.C. Heath, 1986.

[25] Benjamin Bloom, (Ed.) Taxonomy of Educational Objectives. Handbook 1: Cognitive Domain. New York: David McKay, 1956.

COMPREHENSION: Although still at a lower level, comprehension requires the student not only to recall information, but rephrase the information in his or her own words. The student needs to mentally organize the memorized knowledge for rephrasing, a step up from simple recall at the knowledge level.

Sample: Summarize what your text says about the theme of The Great Gatsby.

HIGHER ORDER QUESTIONS

APPLICATION: At this level, students must use a rule, definition, classification, set of instructions or the like to answer a question. Previously learned information is used to solve a problem in a new situation.

Sample: Solve the quadratic equation.

Use Theory Y to solve the following management problem.

Identify the metaphors and similes in the following sonnet.

How would you classfy this plant?

ANALYSIS: Students are required to identify causes, reasons or motives; to analyze information to reach a conclusion; to find evidence to support a position.

Sample: Why did King Lear misjudge his daughter?

Given the results of these five experiments, what generalizations can you make about how environmental contingencies shape behavior.

Support or refute the premise: FDR was the greatest president of the twentieth century

SYNTHESIS: This level consists of creative thinking and asks students to develop original communications, make predictions, or

solve problems for which there are a number of acceptable responses.

Sample: Write a short story on this issue.

What would the U.S. be like if the South had won the Civil War?

How can we raise funds for this cause?

What does this poem mean to you?

EVALUATION: Asks for a judgement, based on established criteria, on the worth of an idea, aesthetic work, solution to a problem, or the like.

Sample: Who is the most effective world leader and why?

Select the best response to the problem of world hunger, and provide a rationale for your choice.

Explain which of these three playwrights makes the most effective use of symbol and imagery.

The Taxonomy offer a useful system for categorizing and conceptualizing levels of questions. As a taxonomy, each higher level or category subsumes the lower ones. Comprehension requires that the knowledge level be mastered. Likewise, synthesis requires that all the previous levels - knowledge, comprehension, application, and analysis - be attained. Evaluation subsumes all the categories and although some of us "jump to conclusions", a rigorous and appropriate evaluation should be preceded by all the levels of the taxonomy.

Applying Bloom's Taxonomy to Classroom Dialogue II on page xx, it is apparent that most of the questions would be categorized either as knowledge or comprehension. If the instructor had used application, analysis, synthesis and evaluation questions, students would have responded with more thoughtful and complex comments;

the discussion would have been more stimulating, closer to the questioning style that, student says, characterized Mark Van Doren's teaching.

> Mark would come into the room, and, without any fuss, would start talking about whatever was to be talked about. Most of the time he asked questions. His questions were very good, and if you tried to answer them intelligently, you found yourself saying excellent things that you did not know you knew, and that you had not, in fact, known before. He had "educed" them from you by his questions. His classes were literally "education" - they brought things out of you, they made your mind produce its own explicit ideas . . . .[26]

Obviously, it would neither be wise nor appropriate for every class hour to include every level of the Taxonomy. Sometimes the instructor's goal might be to establish a foundation of knowledge and then lower order questions are best. However, more frequent use of higher order questions would educe good ideas from students, lead to better education, and a more dynamic intellectual exchange between faculty and students.

Who is Involved in the Intellectual Exchange?

The typical college classroom does not consist of a single class, but of three classes. First there is the very small "class" of one, two or three students who receive about 25 percent of the instructor's time. These are the students who are

[26] Thomas Merton, The Seven Story Mountain. New York: Doubleday, 1948, p. 139.

most likely to volunteer or call out answers or to raise questions or issues themselves; they are rewarded with a disproportionally high share of the instructor's questions and attention. They comprise a class of salient or "star" students. The majority of students comprise a second "class", a group who might be termed "nominal" students, typically receiving one question per class. The final group is by far the largest in the college classroom: silent students who do not interact with the instructor at all.[27] Representing about half of the class, this large group of students are spectators to the educational process.*

Research studies indicate that students who participate actively in the intellectual exchange are more likely to achieve academically and to have more positive attitudes toward education. With the majority of students interaction-poor, colleges are actually more inequitable in the distribution of instructor attention than either elementary or secondary schools.

When race and sex are considered in analyzing who receives teacher attention and questions, some intriguing patterns emerge. The student most likely to be involved in an intellectual exchange with the instructor is a white male. White males receive more questions than any other group in the classroom. Second in line

* Research shows that this characterization of three-tiered classroom with many students uninvolved in the intellectual exchange applies when instructors try to be interactive. When lecture is the dominant mode, all students have a passive classroom role.

[27] David Sadker and Myra Sadker, Promoting Effectiveness in Classroom Instruction. Final Report, No. 400-80-0033. Washington, D.C., National Institute of Education, 1984. Joan Long, David Sadker, and Myra Sadker, "The Effects of Teacher Sex Equity and Effectiveness Training on Classroom Interaction at the University Level," Paper Presented at the American Educational Research Association, San Francisco, California, April 1986.

for instructor time and attention are minority males. The third group is white females, while the least interactive group of students are minority females.[28] That rank order may sound familiar because it also represents the pay scale. In the workplace, a major part of value and recognition is represented by the size of the pay check, with white males receiving the most money, and minority females the least. In the classroom, the currency is teacher attention and questions, and the same pattern prevails.

WHO IS MOST LIKELY TO BE INVOLVED IN THE INTELLECTUAL EXCHANGE

White males — Most

Minority males

White females

Minority females — Least

College instructors rarely notice inequitable patterns of classroom participation. The student who is first to volunteer is often first to be called on, a variation of "the squeaky wheel gets the educational oil." As a result, about half of the college students are not at all involved in classroom participation, and most of the remaining students are only nominally involved.

An interesting portrait could be constructed if tuition were charged on a user's basis instead of single, across-the-board

[28] Myra Sadker and David Sadker, "Sexism in the Schoolroom of the 80s," Psychology Today, March, 1985, pp 54-57. See Also Joan Long, David Sadker, and Myra Sadker, "The Effects of Teacher Sex Equity and Effectiveness Training on Classroom Interaction at the University Level," Paper Presented at the American Educational Research Association, San Francisco, California, April 1986.

fee. (After all, utilities and water are metered, so why not education?) For those few students who dominate classroom discussion and capture 25 percent of the teacher's attention, two, three (or more) times the standard tuition cost would be charged. For about half the class, the silent, non-participating students, tuition rebates would be provided since they are consuming so little of the instructor's time. This somewhat bizarre financing system would have at least one positive side benefit: it would underscore for instructors the value and importance of their time and attention.

Professors can eliminate inequities in their questioning patterns. In one study supported by the Fund for the Improvement of Postsecondary Education (FIPSE) a control sample of professors interacted more frequently with male students. In contrast, a sample of college professors who had received training, practice and feedback were able to achieve equity in the distribution of their questions.[29]

STAGE III: RESPONSE

Pedagogical Cycle: Respond

STRUCTURE

QUESTION

RESPOND

REACT

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[29] Joan Long, David Sadker, and Myra Sadker, "The Effects of Teacher Sex Equity and Effectiveness Training on Classroom Interaction at the University Level," Paper Presented at the American Educational Research Association, San Francisco, California, April 1986.

The first two stages of the pedagogical cycle, if executed well, can increase student responsiveness. An effective structure that motivates and prepares students to learn increases the likelihood of student response. If questions are clearly phrased, reflecting both higher and lower-order levels of the Taxonomy, and are distributed to many students rather than just a few, student participation will increase. The third move of the pedagogical cycle, responding, belongs to students; but there are strategies instructors can use to improve the quality of student answers.

Driven by content that must be "covered", professors sometimes push forward too rapidly. They successfully reach their goal only to discover too late that the majority of the class was left behind. If professors can intentionally pause at two key times in classroom discussion, they can improve not only the amount of student participation, but the quality of response as well. In classroom interaction research, these two points of slowing down are termed "wait time," and they can be powerful in improving the quality of classroom discussion.[30]

Research shows that after asking a question, teachers wait less than a second for a student response (wait time 1). If a response does not emerge in that split second of silence, the teacher rephrases the question, asks another student to answer the question, or answers the question for the student. If instructors can learn to increase their wait time from less than a second to three to five seconds, the quality and quantity of

[30] Mary Budd Rowe, "Wait-Time: Slowing Down May Be a Way of Speeding Up!" Journal of Teacher Education, 37, 1986, pp. 43-50.

student response increases. Waiting after a question is asked will result not only in more students volunteering, but in more accurate and thoughtful responses as well. In fact, the lack of wait time during class interaction is a clue to another problem: the predominance of lower-order questions. Higher order questions require thinking time. Wait time of less than a second underscores the low level of the typical classroom question.

There is another point in the lesson when increased wait time can lead to positive results. After the student responds, teachers usually begin their comments or next question before a second of silence has elapsed (wait time 2). Sometimes they even interrupt the student. Researcher, Mary Budd Rowe, has determined that this second wait time is as important as the first. Again, increasing this period of silence from one to three to five seconds results in dramatic improvements in the quality of student involvement. Increased wait time results in the following changes.[31]

Changes in Student Behavior

1. More student voluntarily participate in discussion.
2. Student achievement increases on written tests that measure more complex levels of thinking.
3. Students are more likely to support their statements with evidence.
4. The length of student response increases dramatically.

[31] Mary Budd Rowe, "Wait Time: Slowing Down May Be a Way of Speeding Up."

5. Speculative thinking increases.
6. There are more student questions and fewer failures to respond.

Changes in Teacher Behavior

1. Teacher comments are less disjointed and more fluent. Classroom discussion becomes more logical, thoughtful and coherent.
2. Teachers ask more higher-order questions. There is a more cognitively sophisticated pattern of teacher questions and student answers.
3. Teachers begin to hold higher expectations for all students.

Wait time is a vote of confidence in a student's ability; when instructors expect success they are willing to wait for it. Research shows that teachers give more wait time to students for whom they hold higher expectations. A high achieving student is more likely to get time to think than a low achieving student. High expectations and longer wait time are positively related to achievement. While more research is needed on this issue, some studies suggest that white male students, particularly high achievers, are more likely to get adequate wait time than are females and minorities. Students who are quiet and reserved or who think more slowly may get special benefit from increased wait time. In fact a key benefit from extended wait time is the quality participation of students who were previously silent or who never seemed to have much to say.

PEDAGOGICAL CYCLE WITH WAIT TIME

STRUCTURE

QUESTION

* WAIT TIME 1 (INCREASED FROM 1 SECOND TO 3 TO 5 SECONDS)

RESPOND

* WAIT TIME 2 (INCREASED FROM 1 SECOND TO 3 TO 5 SECONDS)

REACT

Most instructors are surprised when they learn how short a pause students have in which to think. Those teachers have every intention of remedying this problem. Easier said than done! While wait time is an easy concept to understand, it is difficult to stop the bombing rate pace of interaction.

However when teachers put wait time 1 (pause 3 to 5 seconds after asking a question) and wait time 2 (pause 3 to 5 seconds after a student gives an answer) into effect, they see some remarkable developments in the quantity and quality of student response. This is particularly true for students who are shy and quiet or who have trouble thinking quickly. While it may take patience to increase wait time for all students, the improved quality in intellectual exchange makes the wait worthwhile.

PEDAGOGICAL CYCLE: REACTION AND FEEDBACK

STRUCTURE

QUESTION

RESPOND

REACT (FEEDBACK)

STAGE IV: REACTION

How does the typical instructor react to a student answer or comment? Being logical professionals, we might anticipate that a professor's reaction would be totally dependent on the quality of the student answer. In our mind's eye, professors praise insightful answers and critique or correct faulty responses. Yet research indicates that this assumption, while logical, is not accurate.

An analysis of teacher reactions reveals four types of feedback used in the classroom:

1. **Criticism** - explicit indication that a response is wrong. Criticism, constituting less than 5 percent of instructor reactions, need not be punitive and harsh, but directly indicates that a student comment is inaccurate.

2. **Praise** - positive evaluation and reward for successful accomplishment. Constitutes less than 10 percent of instructor's feedback.

3. **Remediation** - corrective comment designed to improve a student response. About a third of professor reactions are remedial.

4. **Acceptance** - non evaluative reaction which simply recognizes that a student has responded. Over 50 percent of teacher reactions are acceptance.

BOX

Examples of Instructor Reactions:

Praise: Good, excellent, nice work, great, etc. (strong emphasis and intonation can turn even neutral comments into praise)

Accept: OK, uh-huh, fine, right, yes, (silence), (paraphrasing/repeating student response)

Remediate: "Try this ... check your ... reread the instructions ... examine the process you used ... recalculate this aspect of the problem ..." (implicit, rather than explicit criticism, coupled with direction for improvement)

Criticize: "No, that's not right, wrong, incorrect, bad job.

Most teacher reactions fall into a single category: acceptance. Fairly typical acceptance responses would include "OK", "Uh-huh" or simple silence. These imprecise, non-specific, even bland responses are characteristics of most elementary, secondary and postsecondary classrooms, and represent one of the major barriers to more effective teaching.

From grade school through graduate school, most teacher feedback can be described as diffuse and imprecise, setting the tone for an unstimulating, rather placid, classroom climate. This problem is reported in a number of recent publications on American education. Theodore Sizer, in Horace's Compromise, describes the

classroom environment as "tranquil and bland."[33] John Goodlad in A Place Called School writes about his observations this way:

> The emotional tone is neither harsh and punitive nor warm and joyful; it might be described most accurately as flat . . . [T]he classes in our sample, at all levels, tended not to be marked with exuberance, joy, laughter, abrasiveness, praise and corrective support of individual student performance, punitive teacher behavior, or high interpersonal tension.[34]

Classroom Dialogue II on pages xx offers some fairly typical examples of this acceptance feedback. Teacher reactions to student responses in that dialogue are summarized below:

OK

Yes

OK

Fine

All right

Hmm

Uh huh

Fine

Uh huh

[33] Theodore Sizer, Horace's Compromise: The Dilemma of the American High School. Boston: Houghton Mifflin, 1984.

[34] John Goodlad, A Place Called School, New York: McGraw Hill, 1984, pp. 108, 112.

All of these reactions fall into the acceptance category. Research indicates that at the college level, over half of the instructor's reactions are simple acceptance.[35] While there certainly are appropriate times to use non evaluative reactions, there are reasons to view this heavy reliance on acceptance as a problem. Teacher effectiveness research indicates that specific feedback is important for student achievement. Educational researcher David Berliner writes

> Substantial use of corrective feedback in the academic areas, contingent praise for correct or proper behavior, and the use of student's ideas as a way of letting students know that their contributions are valued, all show positive relations to achievement and attitude . . . Criticism, as a form of feedback, if emotionally neutral, has been found to be accepted by students, but it has long been recognized that sarcasm and personal attacks are negatively related to achievement and should not be used as feedback for inappropriate behavior.[36]

John Goodlad says learning appears to be enhanced when students understand what is expected of them, get recognition for

[35] Dawn Thomas, "An Analysis of Sex Differences in Teacher/Student Interaction in Elementary/Secondary and Postsecondary Mathematics/Science, Composition/Literature/ Language Arts Classrooms," Doctoral Dissertation, American University, 1983. See also, Myra Sadker and David Sadker, Final Report, Project EFFECT (Effectiveness and Equity in College Teaching), Washington, D.C.: Fund for the Improvement of Post-secondary Education, 1985.

[36] David Berliner, "The Half-Full Glass: A Review of Research on Teaching," p. 71.

their work, learn quickly about their errors, and receive guidance in improving their performances."[37] Clearly the reliance on acceptance responses does not provide students with the kind of specific and helpful guidance related to effective teaching and student achievement.

Precise instructor reaction is relatively rare, and the distribution of teacher feedback is far from equitable. To begin with, since approximately half of the students in a typical college classroom are silent, non-participating students, naturally they neither receive nor benefit from teacher feedback. But for those students who are participating, males are more likely than females to receive precise teacher reactions. Whether the teacher is praising, criticizing or remediating, male students are more likely to be the beneficiaries of these more valued and useful classroom interactions.[38]

Improving the Pedagogical Cycle: Strategies and Observation Techniques

The following section includes suggestions for improving each of the four stages of the pedagogical cycle as well as observation techniques for assessing each stage. Since observing

[37] John Goodlad, A Place Called School, p. 111.

[38] Dawn Thomas, "An Analysis of Sex Differences in Teacher/Student Interaction in Elementary/Secondary and Postsecondary Mathematics/Science, Composition/Literature/Language Arts Classrooms," Doctoral Dissertation, American University, 1983. See also, David Sadker and Myra Sadker, Year 3 Final Report, Promoting Effectiveness in Classroom Instruction.

one's own teaching presents some difficulties, several strategies are suggested. Video or audio taping can be useful in recording teaching for later analysis. Working with a colleague offers an even less cumbersome way to observe and record classroom interaction, and working in pairs facilitates instructional improvement in two classrooms. Whatever technique is chosen, objective observation is a key step in understanding, evaluating and improving instruction.

STRUCTURE

1. Write out your structure and make certain that it includes all the key components (Motivation, objectives, etc.). Practice using a written structure in class and compare the results with classes you teach without such a written structure. After you have completed your structure, ask your students to paraphrase what you said. Have they clearly understood the purposes, direction and examples? Are they motivated and prepared to learn the material?

2. Write out and distribute the objectives for your lesson. At the end of the class, determine if your students have achieved these objectives.

3. Ask a colleague to observe and react to your structure. Questions that the observer might address include:

Did the structure ... review prior learning?

(and substructures) provide complete objectives?

include a transition?

motivate students?

present clear direction?

include relevant examples?

reflect the instructor's interest in the content?

include clear explanations and examples?

4. A significant part of structure occurs before the professor enters the classroom. Students choose seats because of a number of reasons, and sometimes these reasons are detrimental to effective instruction. Some students sit together because of friendship, while others seek the far corners of the classroom to avoid attention and interaction. Research indicates that race, and sex may also be factors influencing seating preference.

Imbalanced seating assignments lead to imbalance in classroom interaction patterns. Studies indicate that students seating near the teacher are more likely to be involved in classroom discussions then students seated further away. Students who distance themselves from the instructors are effectively limiting their role in the classroom and reducing their learning opportunities.

Analyze your class seating patterns by drawing a seating chart indicating the race and/or sex of each student. Do you detect patterns of segregation? If segregation does appear in your classroom, you may want to be discuss this - or even to assign seats. Some professors find it useful to explain the purpose of the assignments and the need to promote not only integrated learning, but an integrated society as well.

QUESTIONING

1. Through an audio or video recording or the participation of an observor, record the distribution of questions. Also note the classroom attendance (a seating chart reflecting the race and sex of each student is an effective technique). Each time a question is asked, record the student receiving the question. Compare the distribution to the actual attendance in the classroom in terms of:

a - racial differences

b - males and females

c - areas of the room receiving unusually high or low number of questions

d - salient or silent students

2. Again using the techniques described above, record each question asked in the class.

a - How many questions were asked?

b - What is the ratio of lower to higher order questions?

3. For each question asked, indicate whether the student responding has voluntered the response or is being called on without volunteering. Using a seating chart, a simple "V" or "N" could indicate each type of participation. Examine the relative emphasis the instructor places on voluntary versus non-voluntary participation.

a - Does the instructor depend on only one type of participation?

b - Is there a difference by race or sex or seating in who volunteers and who does not?

c - Does reliance on voluntary responses result in an uneven distribution of questions?

4. For each of the observations, a student (not in the class) as well as a colleague can be taught to observe and record these data. Using a teaching assistant, for example, can considerably increase the opportunity for observations.

5. Data produced through these observations may suggest a number of areas for improvement. For example, the data may indicate the need for:

a - Developing more questions for use in the classroom. (Perhaps writing out a number of questions before the class might assist this effort)

b - Preparing a greater number of higher order questions

c - Distributing questions to students not involved in the interaction with particular attention to any racial or gender group omitted, as well as attention paid to geographic areas in the room left out of the interaction

d - Reducing reliance on students who volunteer and more intentionally calling on different students for responses

e - Reducing the saliency of some students while transforming silent students into participating members of the class

RESPOND

1. Through mechancial recording or the participation of an observor, determine the length of wait time 1 (after a question is asked) and wait time 2 (after a student response is completed). (Obviously, a digital watch or a second hand is required.) One second or less could be recorded as a "1". The first wait time

could be written as a numerator and wait time 2 as a denominator, e.g. 1/1, 1/2 would indicate two questions with wait time 1 only 1 second or less for both questions, and wait time 2 as one second or less the first time, and 2 seconds during the second question.

Simply listing the fractions representing wait times 1 and 2 provides interesting data for analysis.

a - How long is the typical wait time?

b - Is there a difference between wait time 1 and 2?

c - How often does wait time reach or exceed 3 seconds?

2. Rather than simply listing wait time occurances, a seating chart could be constructed and each wait time fraction could be written on the seating chart to correspond with the student receiving the wait time. After the class, the distribution and length of wait times could be evaluated. The following questions could be investigated:

a - Are certain gender or racial groups receiving longer or shorter wait time?

b - Do certain salient students receive longer wait time than others?

c - What are the characteristics of students who receive longer wait time?

3. Some instructors adopt self monitoring cues to slow down the pace of interaction and increase wait time. For example, an instructor can ask a question, and with hands behind back, deliberately tap three seconds before calling on a student (wait time

1) or before reacting (wait time 2). Other instructors develop similar physical reminders or behaviors to increase wait time.

4. One reason why wait time may be brief might be attributed to a high rate of lower order questions. Wait time is most appropriate when used with higher order questions which require more thought before response or reaction. If the level of most questions remains lower order, the instructor may want to return to the previous stage of the pedagogical cycle and work on increasing the level of questions. Wait time is far less effective in a class dominated by lower order questions.

REACTION

1. Each teacher reaction can be recorded using the categories Praise, Accept, Remediate, Criticize).

a. Does the use of acceptance constitute more than half of all interactions?

b. What percentage of reactions are praise, remediate and criticize? Are any of these three more precise reactions rarely used or not used at all?

2. Using a seating chart, record who receives each category of reaction (using P,A,R,C to denote each of the categories). Analyze the seating chart to determine:

a. Who receives precise reactions? Is there a difference by race or gender as to the likelihood of receiving precise reactions? Is a particular area of the room more likely to be found with precise reactions?

b. How can you characterize the students receiving praise? criticism? remediation?

3. Increasing wait time 2 should assist in developing more precise reactions. With more silence after a student response, instructors have the opportunity to evaluate the response and provide precise feedback. Improvement of wait time in stage 3 should facilitate improvement of precise reactions in stage 4.

4. Assess the appropriateness of the reactions. Does a quality answer receive praise? Does a weak or incorrect answer receive criticism or remediation? Are instructors reactions related to the quality of the answer?

5. Work on developing and increasing one precise interaction at a time. Perhaps praise can be used initially. Make a consciencious effort to praise particularly good answers. Develop a variety of praise words. After this is accomplished, branch out to other precise interactions, developing a repetoire of words for remediation and criticism.

6. Examine who is receiving and not receiving precise reactions. Develop a plan to involve all students in classroom interaction and to increase the precise reactions given to all students.

7. A higher frequency of acceptance may reflect an unchallenging classroom environment. Questions associated with "OK" responses may be bland. More difficult and challenging questions are more likely to result in praiseworthy student responses, or responses which need to be corrected or improved. If the level of acceptance responses in a class is high, the level of questions in that class may be low.

Where Do We Go From Here?

Recommendations for Change

The story is told of a state legislator who upon hearing that the typical teaching load at the state university was 12 hours, remarked, "Well, that seems to be a fair day's work." What most people outside the university do not realize is that time spent in the classroom is only part of a professor's teaching duties, and teaching is only part of a professor's university responsibilities. The phrase "publish or perish" (in times of retrenchment, "publish *and* perish") has alerted most people to one of the pressures of life on campus. But other time demands, such as the never ending array of committees, meetings and paper work, are rarely appreciated by the public. In fact, a recent survey of college professors reported that 66 percent indicated their greatest concern was "having too much to do."[39] This self-report was confirmed by Caplan and others (1980) who studied twenty-three occupations and found that faculty members work the most hours of any of the occupations examined.[40]

Many demands on faculty time is just one of the concerns expressed. Low salary, conflicts between teaching, service and scholarship and the lack of administrative support were other frequently cited areas of distress. But on the positive side of the ledger, faculty members reported satisfaction with the oppor-

[39] Kenneth Eble and Wilbert McKeachie, *Improving Undergraduate Education Through Faculty Development* (San Francisco: Jossey-Bass) 1985, p. 165.

[40] R.D. Caplan et al., *Job Demands and Worker Health* (Ann Arbor: Institute for Social Research, University of Michigan), 1980.

tunity to work in a learning environment, a sense of accomplishment associated with their efforts, and a feeling of independence in their jobs. Many of the concerns and satisfactions expressed by faculty are potential building blocks for improving teaching effectiveness. Today, these building blocks, rather than being put to use, lay scattered and ignored.

On most campuses, teaching does not rank very high either in terms of institutional resources or faculty interest. Referred to as a "teaching load", instruction is often viewed more as a burden than an opportunity. Faculty members are hired with more attention paid to their scholarly activities than their teaching skills. As William Arrowsmith noted, teaching is not a major or even minor focus of "the pinched professionalism of the graduate school."

The following recommendations are directed at institutions as well as faculty members in an attempt to move teaching from the periphery to center stage in higher education. This effort will require organizational support and encouragement as well as faculty commitment. The recommendations provided here are not directed at reducing scholarly or professional activities beyond the classroom. Rather, they are directed at improving teaching, providing faculty with resources and rewards for teaching well and providing students with as effective an education as possible. In the words of the recent Carnegie Report on Higher Education:

> The joy of teaching, engaging the intellect of students, and the satisfaction of participating in the building of an institution of higher learning - these, too can and should be a source of fulfillment as great as seeing one's name in

print in the pages of a professional journal or hearing the applause of one's fellow scholars at a professional meeting.[41]

Recommendations

- Teaching should be valued as much as research, scholarly activies, publications and grants.

Institutions should establish a procedure for assessing teaching effectivness. Procedures might include student, collegial and supervisory evaluation of teaching. Merit pay as well as promotion and tenure decisions should be based in part upon teaching effectiveness. Institutions which recognize research and scholarship may want to award similar recognition for excellence in teaching.

- Faculty development and resources should focus on instructional improvement.

Faculty development opportunities should become a regular part of the postsecondary institution. While elementary and secondary teachers are provided training before and during their teaching careers, the current "sink-or-swim" philosophy which characterizes most colleges and universities represents an abandonment of even minimal organizational responsibility for promoting effective teaching. Organizational resources such as research grants, travel funds and sabbatical leaves, while appropriate and appreciated faculty development opportunities, fall far short of what is needed to improve teaching. Focused efforts, such as

[41] Ernest Boyer, College - The Undergraduate Experience in America (New York: Harper and Row), 1987.

teaching clinics, in-class observations, teaching demonstrations and actual practice with a variety of teaching skills and strategies should be provided for faculty members. Such teaching clinics and classroom observations could be made not only a part of orientation for new faculty members, but as an opportunity for tenured and senior instructors as well. Classroom teaching can be improved most effectively when teaching is the direct focus of faculty development, and not a indirect and secondary beneficiary of an award of travels funds, a research development grant or a seminar.

- **Higher Education institutions may wish to institute teaching grants.**

Although research grants are fairly common on college campuses, grants to improve teaching are less common. Such grants could support release time for talented instructors to work with their colleagues, time for faculty members to observe different teaching styles or attend activities directly related to instructional improvement. Such grants may also serve to promote alternative teaching styles and environments, approaches which depart from the traditional and predictable lecture-discussion format of the typical college classroom.

- **Colleges and universities should disseminate information concerning education research and teaching strategies on a regular basis.**

Although professors are usually well trained in their academic disciplines, many know very little about the research on teaching and learning. Educational research on teaching effectiveness, innovative teaching programs and strategies for improvement should

be shared with faculty members through publications, regular faculty meetings and special meetings devoted to improving teaching.

- Improving instruction on campus should be a cooperative, long term effort.

College teaching will not be significantly increased through a single activity. Substantive change will not occur if the effort is perceived as a short-term "fad". It will take institutional resources and rewards over a number of years, combined with faculty participation and commitment, to establish long term improvement in teaching. A long range program, staffed by appropriate personnel, will be required.

The faculty must also be directly involved in this effort, for faculty ownership is critical to the success of such a program. If faculty members participate in the creation and implementation of such a program, it has a far greater change for success.